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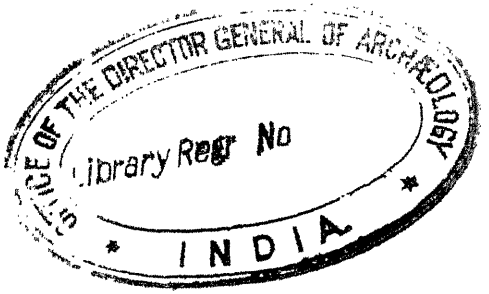
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ANALYTICAL DRAWINGS

OF

AUSTRALIAN MOSSES,

EDITED BY

FERDINAND MUELLER,

PH.D., M.D., F.R.S., F.L.S., F.R.G.S., C.M.Z.S.

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TO

SIR CHARLES NICHOLSON, BART.,

D.C.L., LL.D., M.D., ETC.,

IN

APPRECIATION OF HIS NOBLENESS OF MIND AND PROFOUNDNESS OF LEARNING,

CORDIALLY OFFERED BY

FERDINAND MUELLER.



INTRODUCTION.

To these delineations of Australian Mosses, of which the first series is now issued, publicity has been given with a hope of directing thereby more general attention to a complex of most delicate and lovely plants, requiring for full elucidation of the Australian species still more extensive observation throughout this country. Their comparison with congeneric forms of other parts of the globe is surrounded with especial interest to descriptive and geographic phytology. For microscopic studies they form most pleasing objects, revealing to the uninitiated observer a most unexpected display of tender beauty and of constancy of subtile characters, the recognition of which will well reward those who by scientific taste may be induced to bestow occasionally some of their leisure hours on these enquiries.

The extreme facility with which Mosses may be preserved, the pleasure to be derived from contemplating the elegance or neatness of their form, the possibility of condensing a vast number of species into a narrow space, render them most worthy to occupy a place in the pleasure-room of the educated, and among the materials for training the juvenile mind.

Although many of the Mosses of this continent are cosmopolitan, or at least widely diffused over the globe, numerous others are restricted to the southern latitudes, counting amongst them a multitude of kinds of exquisite beauty and showing in such as Dawsonia superba some of the grandest forms which this class of plants exhibits in any part of the world.

The whole of tropical Australia, with exception of its eastern wet forest-mountains, is almost totally devoid of Mosses, but throughout the extratropical latitudes of this continent, with the exception of the most arid desert-tracts, they are more or less copiously distributed; but in the humid and wooded ranges, and especially in the ferntree-valleys and alpine regions of Victoria, these plants are more richly represented than in any other part of Continental Australia. Hence most of the colonists have many of these minute plants readily within their reach, and thus possess the means of enlarging our knowledge of a branch of natural history, which is still amply replete with novelty.

In promulgating the forms of plants, illustrated in these pages, the editor commits himself to no opinion on their specific validity, but is rather impressed with the persuasion, that the number of species assumed in Australian Bryology needs extensive reduction. The dissections, detailed in the plates, will at once convey to the student an idea of the principles on which the discrimination of genera and species depends.

The Mosses here illustrated were collected mostly by the editor in various parts of Australia. The descriptions have been furnished by Dr. Eduard Hampe, of Blankenburg

(Brunswick), who to the special study of this class of plants has devoted almost a life-time. In this investigation he was in many instances aided by Dr. Carl Mueller, now of Berlin, to whose assiduous researches we are indebted for the most recent universal work of the Mosses of all countries. (Synopsis Muscorum frondosorum, Berolini, 1849–1851.)

Under the direction of this laborious and expert bryologist the illustrations were drawn in Berlin, and afterwards under the editor's supervision lithographed by Mr. F. Schoenfeld in Melbourne.

PLATES.

PLATE I.

FUNARIA TASMANICA.

Hampe & C. Mueller in Linnæa, 1853, 490.

In Tasmania, accompanied by Targionia Tasmanica.

Fig. 1. The plant in its natural size.

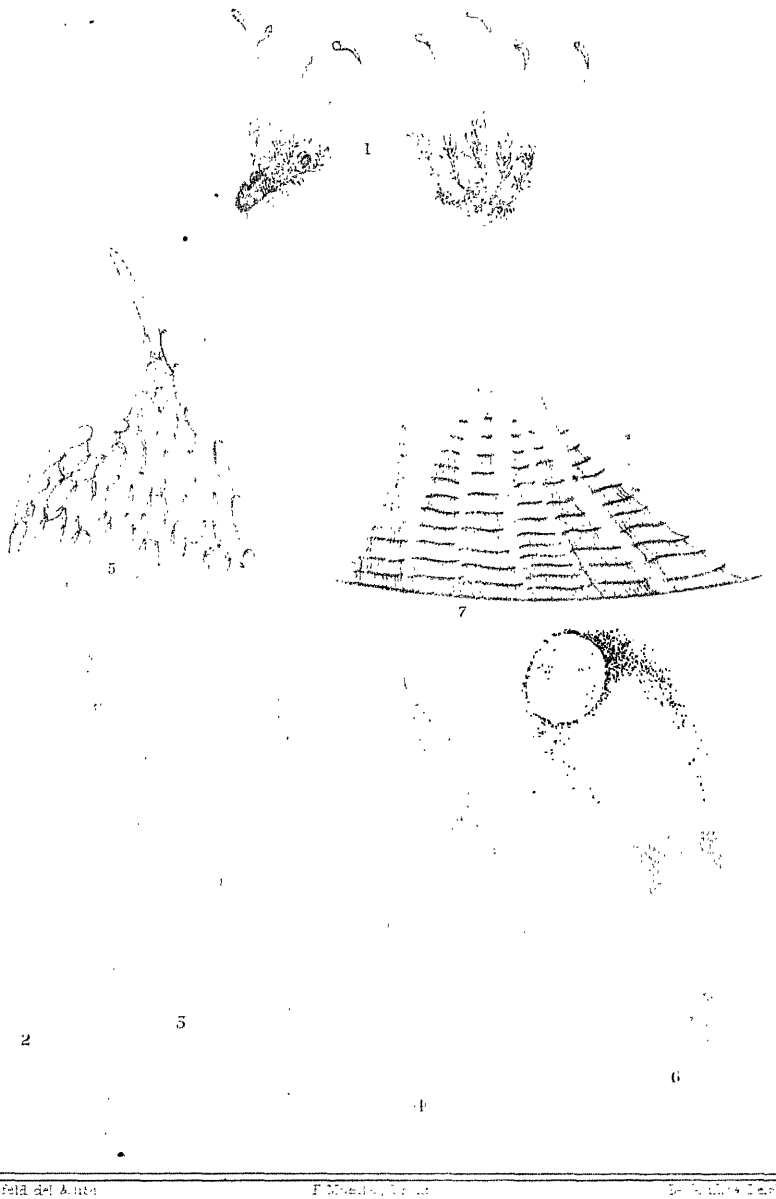
Figs. 2–3. Stem-leaves, enlarged.

Fig. 4. Upper perichætial leaf, enlarged.

Fig. 5. Portion of a leaf, strongly magnified.

Fig. 6. Sporangium, enlarged.

Fig. 7. Part of the peristome, much enlarged.



F Schonfeld del & lith

Funaria Tasmanica Hampe.

PLATE II.

BARBULA SUBSPIRALIS.

Hampe.

Australia felix.

Fig. 1. The plant in its natural size.
Fig. 2. Portion of the plant, enlarged.
Figs. 3–7. Stem-leaves, considerably enlarged.
Figs. 8–9. Perichætial leaves.



F Schonfeld del. et lith.

Barbula subspiralis Hampe.

PLATE III.

BARBULA SUBTORQUATA.

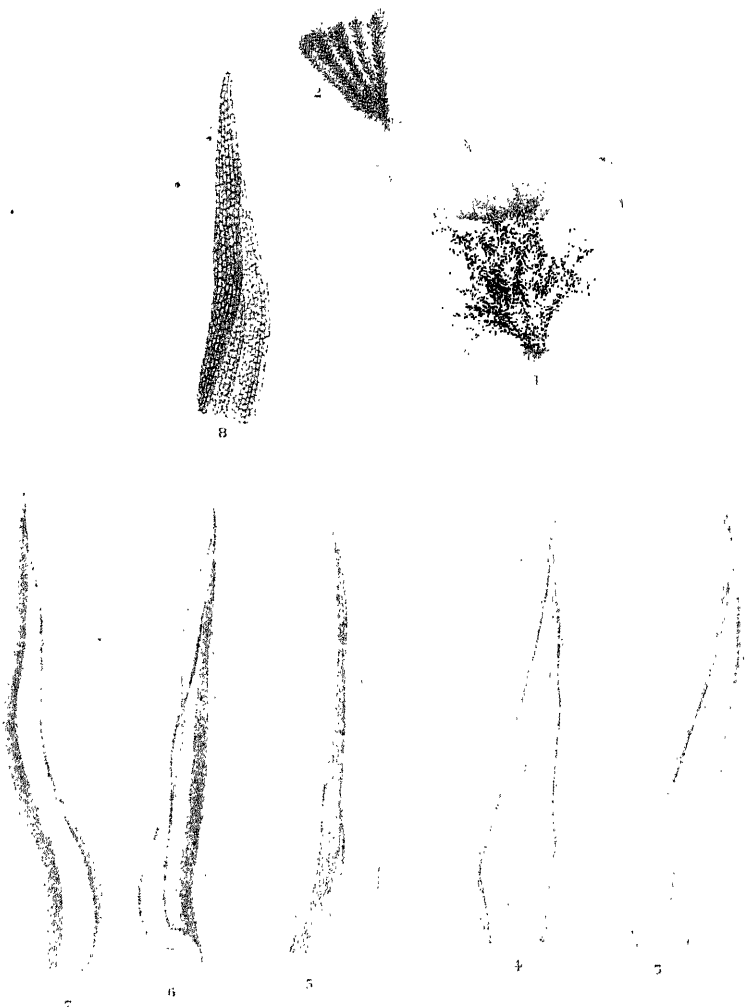
Hampe & C. Mueller in Linnæa, 1853, 492.

At Mount Gambier.

Figs. 1–2. Plants of natural size.

Figs. 3–7. Stem-leaves, enlarged.

Fig. 8. Perichætial leaf, enlarged.



P. Schonfeld, pr. 4 Mk.

Barbula subtorquata Hampe.

PLATE V.

BARBULA PANDURIFOLIA.

Hampe & C. Mueller in Linnæa, 1853, 493.

Australia felix.

Fig. 1. Plant of natural size.

Figs. 2–3. Stem-leaves, magnified.

Fig. 4. Apex of a stem-leaf, much magnified.

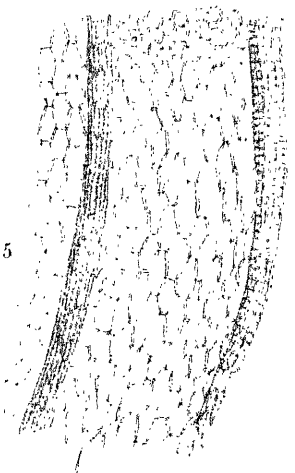
Fig. 5. Lateral portion of a stem-leaf, strongly magnified.

Fig. 6. Sporangium with part of its stalk, magnified.

Fig. 7. Peristome, strongly magnified.



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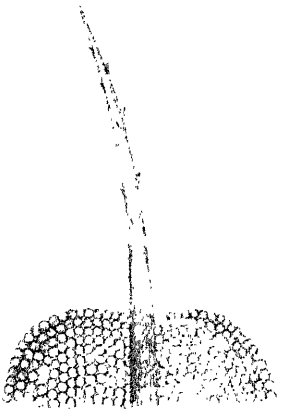
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Barbula pandurifolia. *Hmp. & Muell.*

PLATE VI.

BARBULA FLEXIMARGINATA.

Hampe & C. Mueller in Linnæa, 1853, 493.

Australia felix.

Fig. 1. Plant of natural size.

Figs. 2–3. Stem-leaves, magnified.

Fig. 4. Lateral portion of a stem-leaf, strongly mangified.

Fig. 5. Sporangium with part of its stalk, enlarged.



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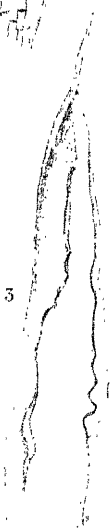
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Barbula fleximarginata.

PLATE VII.

BLINDIA ROBUSTA.

Hampe in Linnæa, 1858, 627.

In the Munyang-Mountains of the Australian Alps.

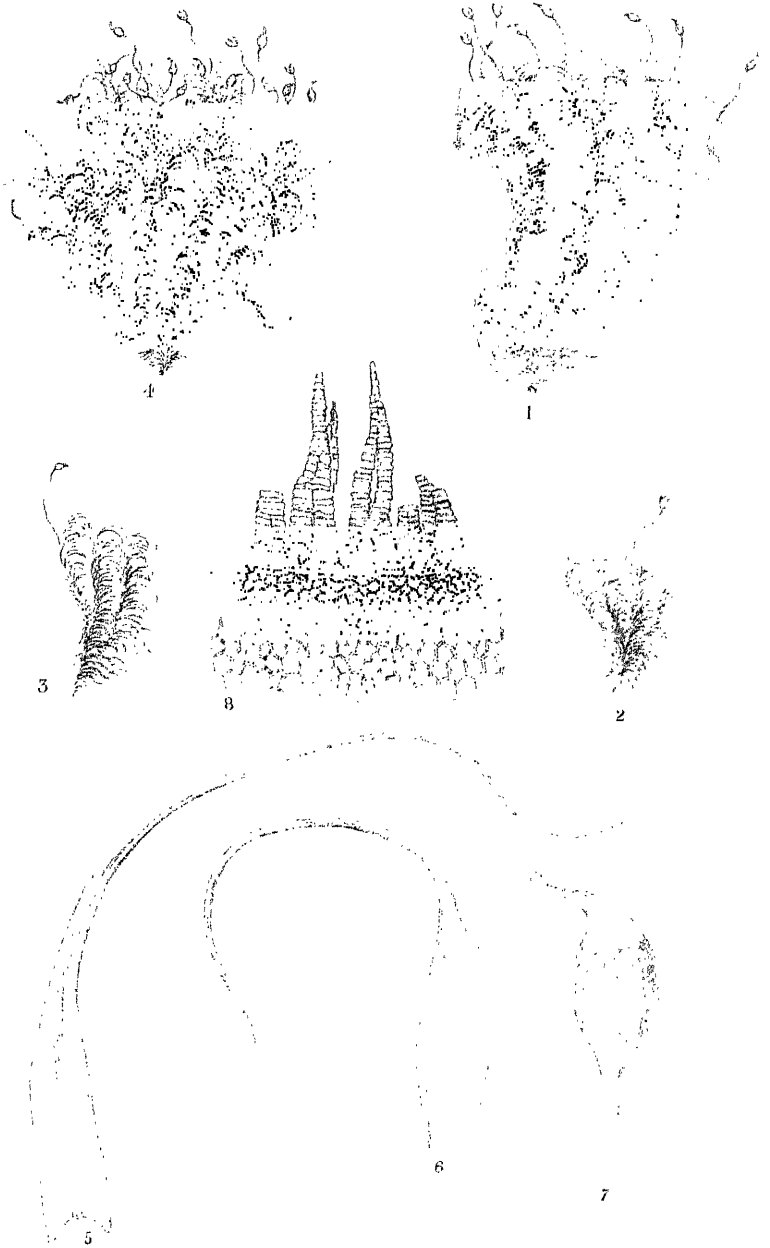
Figs. 1–4. Plants in their natural size.

Fig. 5. A stem-leaf, enlarged.

Fig. 6. A perichætial leaf, enlarged.

Fig. 7. Sporangium with its operculum, enlarged.

Fig. 8. Part of the summit of the sporangium with its peristome, very much magnified.



Blindia robusta.

PLATE VIII.

BARTRAMIA CATENULATA.

Hampe in Linnæa, 1858, 631.

On the alpine summit of the Cobboras-Mountains.

Figs. 1–4. Plant in its natural size.

Figs. 5–6. Stem-leaves, diametrically fifty times enlarged.

Fig. 7. Branches-leaves, diametrically fifty times enlarged.

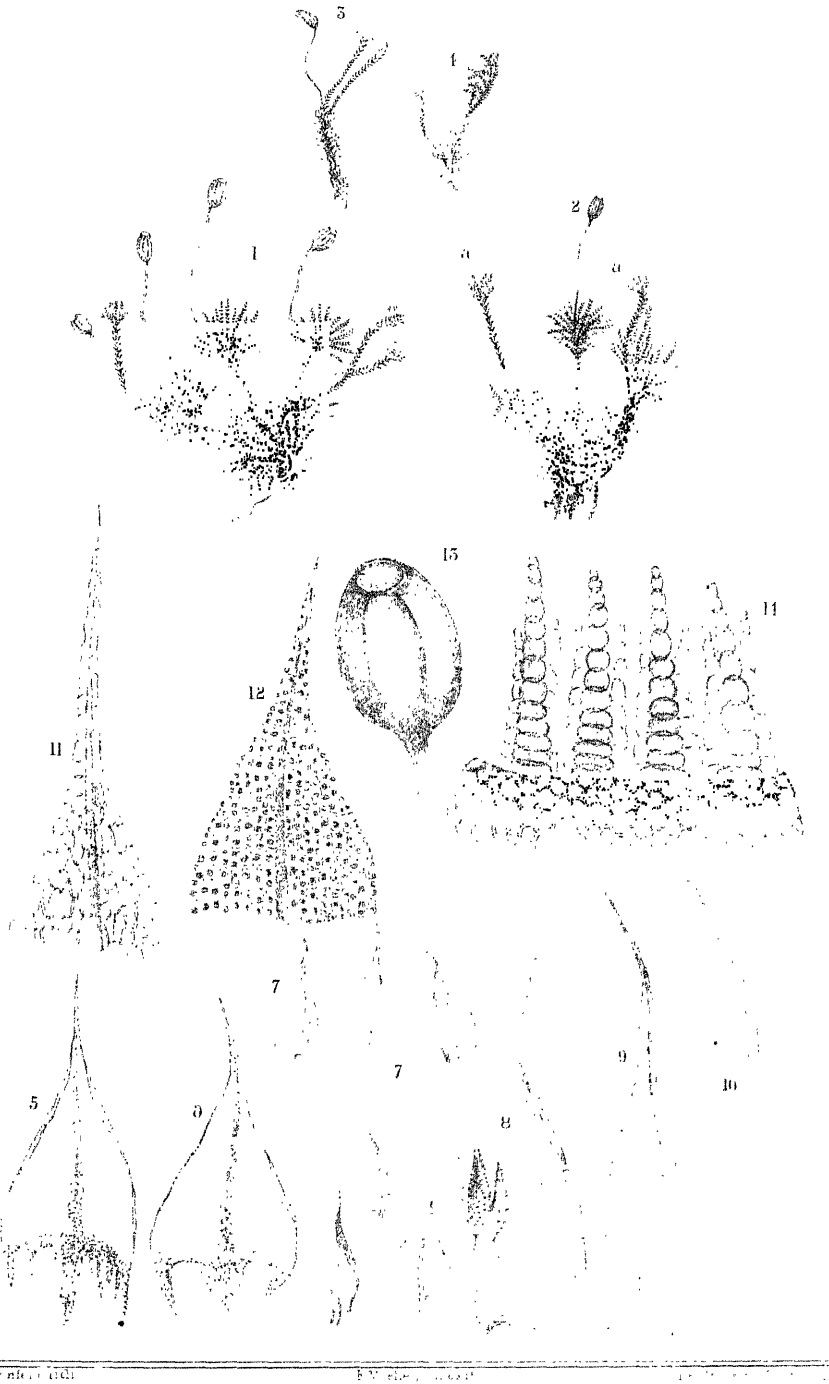
Figs. 8–10. Perichætial leaves; fig. 8 including a young branchlet.

Fig. 11. Apex of a perichætial leaf, strongly magnified.

Fig. 12. Apex of a stem-leaf, strongly magnified.

Fig. 13. Sporangium, enlarged.

Fig. 14. Peristome, much augmented in size.



Bartramia catenulata.

PLATE IX.

DAWSONIA LONGISETACEA.

Hampe in Linnæa, 1858, 634.

Near Parramatta. W. Woolls.

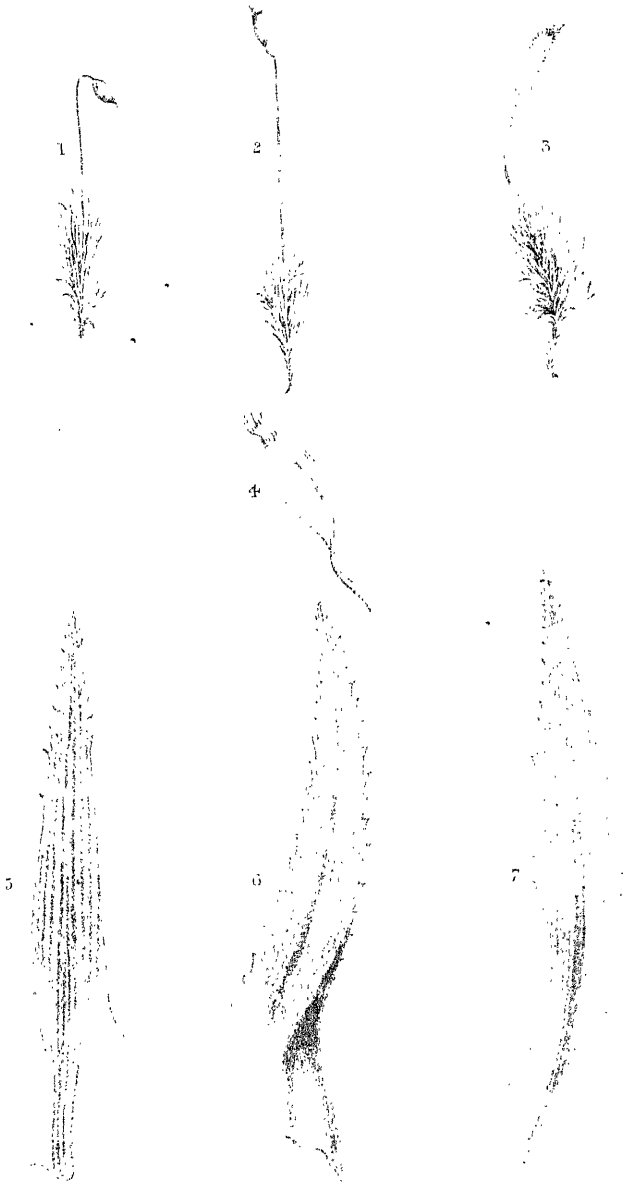
Fig. 1. Plant of natural size, the sporangium bearing its operculum.

Fig. 2. Plant of natural size, the sporangium after the lapse of calyptra and operculum showing the peristome.

Fig. 3. Plant of natural size, the sporangium covered by the calyptra.

Fig. 4. Sporangium and its peristome, enlarged.

Figs. 5–7. Leaves, magnified.



Dawsonia longiseta.

PLATE X.

DAWSONIA APPRESSA.

Hampe in Linnæa, 1858, 635.

On the River Onkaparinga.

Figs. 1–2. Plant of natural size; the sporangium deprived of operculum and calyptra.

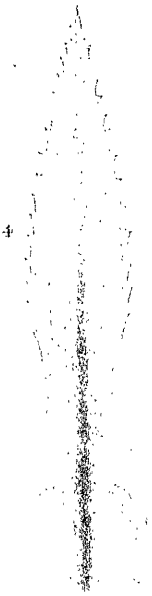
Fig. 3. Sporangium enlarged, after the lapse of operculum and calyptra.

Figs. 4–5. Leaves, magnified.











P. Schoufeld, ad.nat. F.Mueller, direxit Te Strechert, Lugd. Bat.

Dawsonia appressa. *HAMPE*

PLATE XI.

CRYPHÆA SQUARRULOSA.

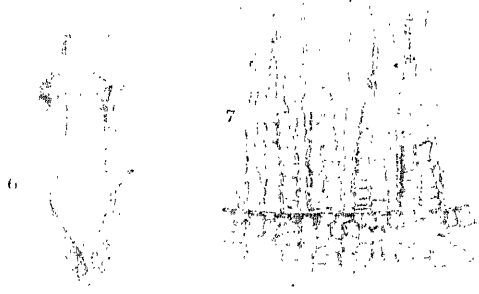
Hampe in Linnæa, 1858, 636.

On the Tarwin-River of Gipps-Land.

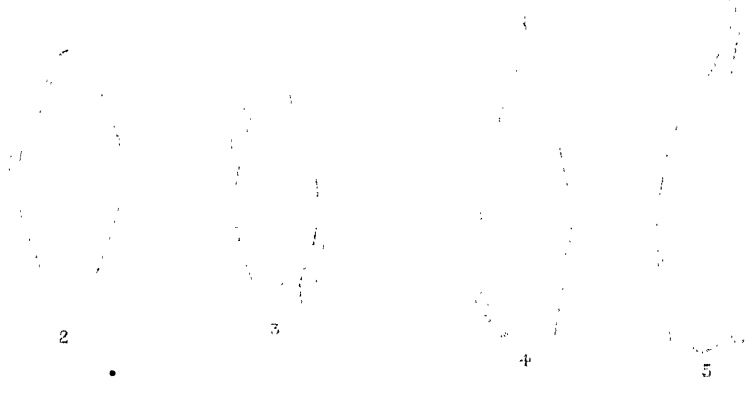
Fig. 1. Plant in its natural size.
Figs. 2–3. Stem-leaves, enlarged.
Figs. 4–5. Perichætial leaves, enlarged.
Fig. 6. Fruit, enlarged.
Fig. 7. Part of the peristome, strongly magnified.



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L. Curmichael ad. nat. P. Mazell. direx. Ir. Ot. sc. & Legit imp

Cryphaea squarrulosa.

PLATE XII.

HYPNUM SUBERECTUM.

Hampe in Linnæa, 1858, 638.

Fig. 1. Plant of natural size.

Fig. 2. Part of a stem and a branch, magnified.

Figs. 3–5. Stem-leaves, magnified.

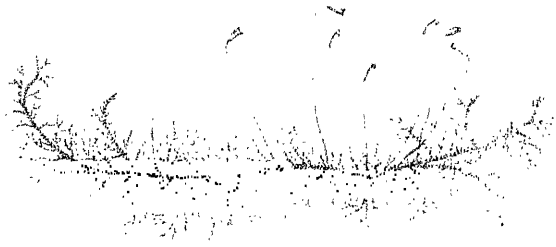
Fig. 6. Branches-leaves, enlarged.

Fig. 7. Branch-leaf, strongly magnified.

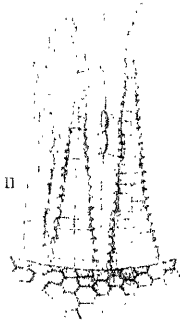
Figs. 8–9. Perichætial leaves, strongly magnified.

Fig. 10. Sporangium, much enlarged.

Fig. 11. Part of peristome, very much magnified.


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F. Schonfeld lith. F. Mueller, ad nat. delt. De Greef & Zoon imp.

Hypnum suberectum.

PLATE XIII.

HYPNUM CONGRUENS.

Hampe in Linnæa, 1858, 643.

Fig. 1. Plant, natural size.

Fig. 2. A branch, enlarged.

Fig. 3. Stem-leaves, enlarged.

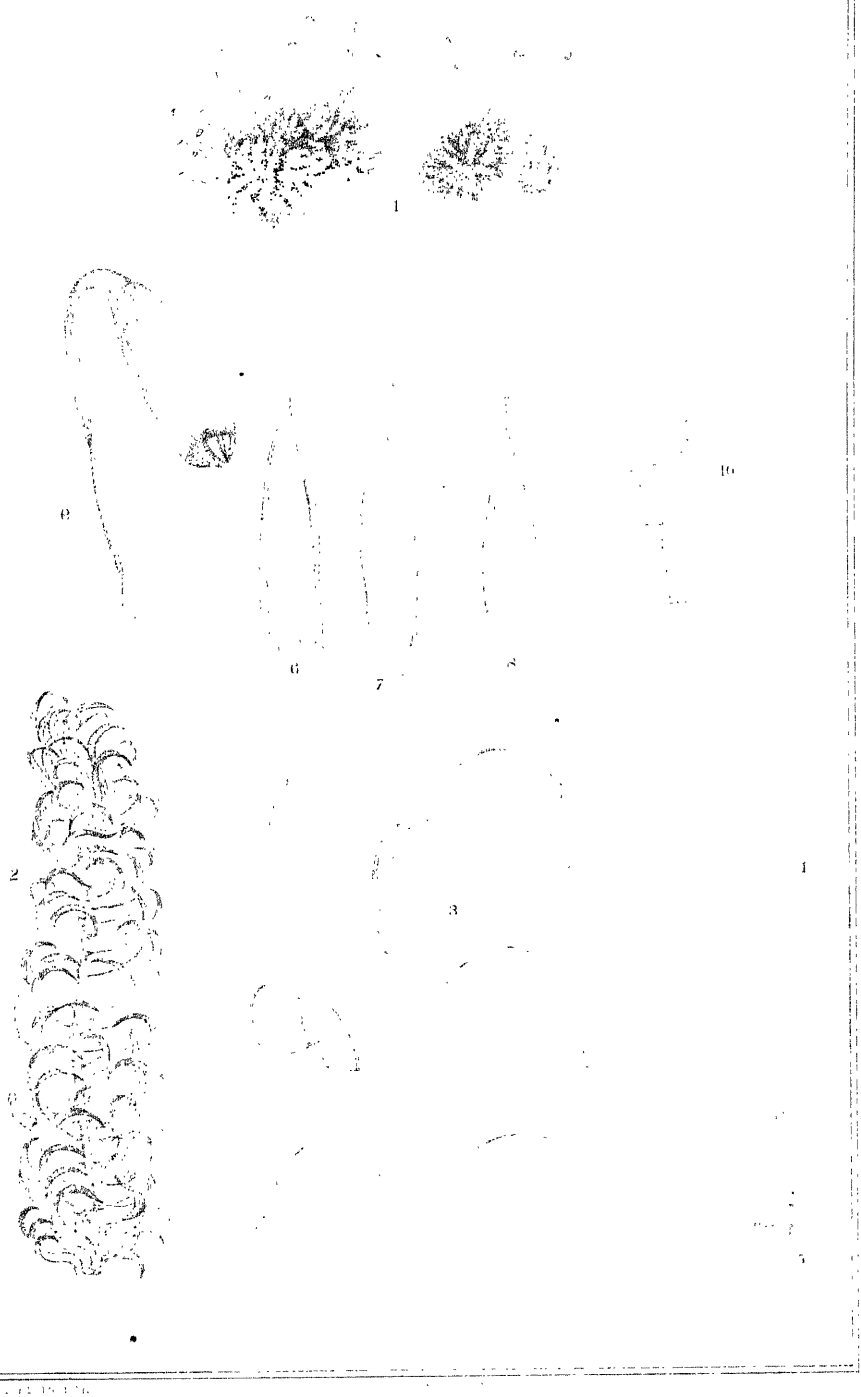
Fig. 4. A stem-leaf, still more enlarged.

Fig. 5. Part of it strongly magnified.

Figs. 6–8. Perichætial leaves.

Fig. 9. Sporangium with part of its stalk.

Fig. 10. Part of peristome, strongly magnified.



Hypnum congruens.

PLATE XIV.

HYPNUM CALLIDIOIDES.

C. Mueller in Linnæa, 1856, 213.

At Sealer's Cove.

Fig. 1. Plant of natural size.

Fig. 2. A branch, enlarged.

Fig. 3. Stem-leaves, enlarged.

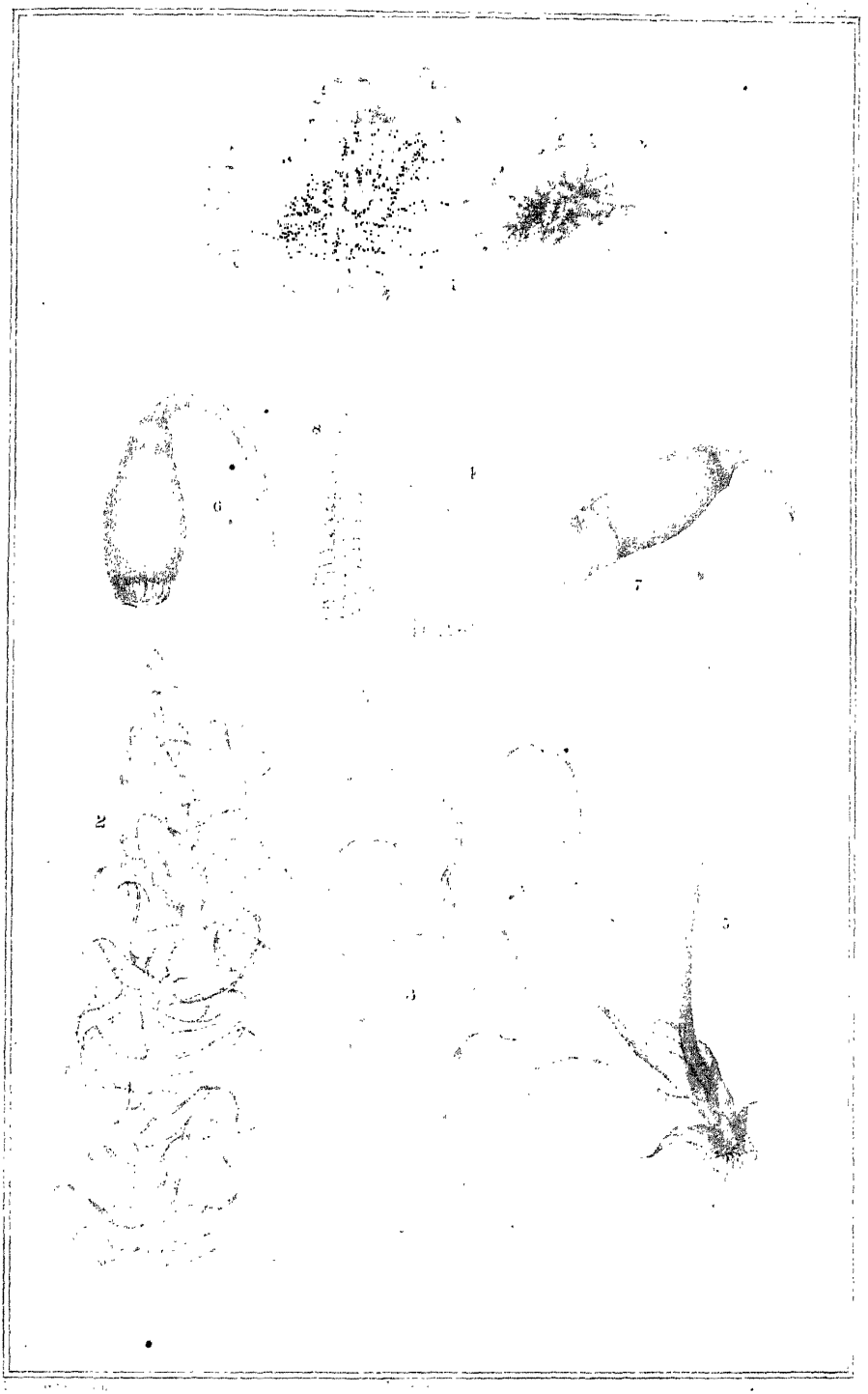
Fig. 4. Perichætial leaf, enlarged.

Fig. 5. Fruit-stalk, surrounded with perichætial leaves, enlarged.

Fig. 6. Sporangium, without its operculum, enlarged.

Fig. 7. Sporangium, with its operculum, enlarged.

Fig. 8. Teeth of peristome, much enlarged.



Hypnum callidioides.

PLATE XV.

HYPNUM TRACHYCHÆTUM.

Ferd. Mueller.

Australia felix.

Fig. 1. Plant of natural size.

Fig. 2. A branch, enlarged.

Fig. 3. Fruit-stalk with perichætial leaves, enlarged.

Fig. 4. Sporangium, after the fall of the operculum, enlarged.

Figs. 5–6. Leaves, enlarged.

Fig. 7. A leaf, still more strongly enlarged.

Fig. 8. Teeth of peristome, much enlarged.



Hypnum trachychaetum.

PLATE XVI.

CONOMITRIUM PERPUSILLUM.

Hampe in Linnæa, 1858, 645.

At Sealer's Cove.

Fig. 1. Plant of natural size.

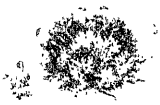
Fig. 2. A fruit-bearing branch, magnified.

Fig. 3. The same without sporangium, magnified.

Fig. 4. A leaf, strongly magnified.

Fig. 5. Upper part of the sporangium, together with the peristome, strongly magnified.

Fig. 6. A tooth of the peristome, very strongly magnified.



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Conomitrium perpusillum.

PLATE XVII.

FISSIDENS PUNGENS.

Hampe & C. Mueller in Linnæa, 1853, 502.

Barossa-Range.

Fig. 1. Plant of natural size.

Fig. 2. The young fertile plant, enlarged.

Fig. 3. The fertile plant after perfect development, enlarged.

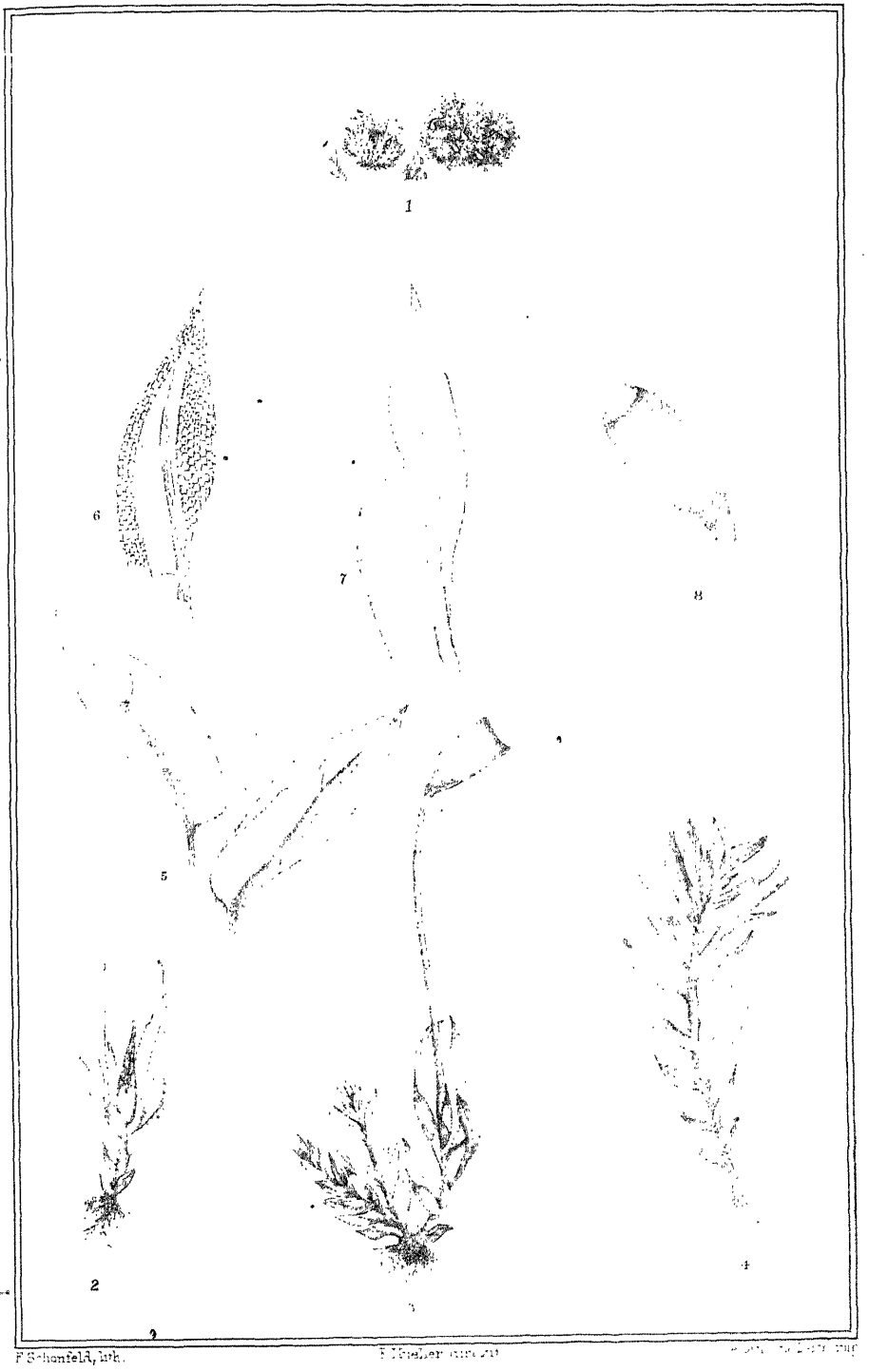
Fig. 4. The sterile plant, enlarged.

Fig. 5. Part of a branch with two leaves of the sterile plant, much enlarged.

Fig. 6. A stem-leaf, diametrically 150 times enlarged.

Fig. 7. A perichætial leaf, diametrically 150 times enlarged.

Fig. 8. Sporangium, fifty times diametrically enlarged.



F. Schonfeld, lith.

Fissidens pungens.

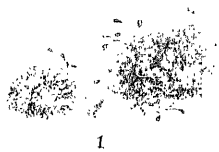
PLATE XVIII.

FISSIDENS SEMILIMBATUS.

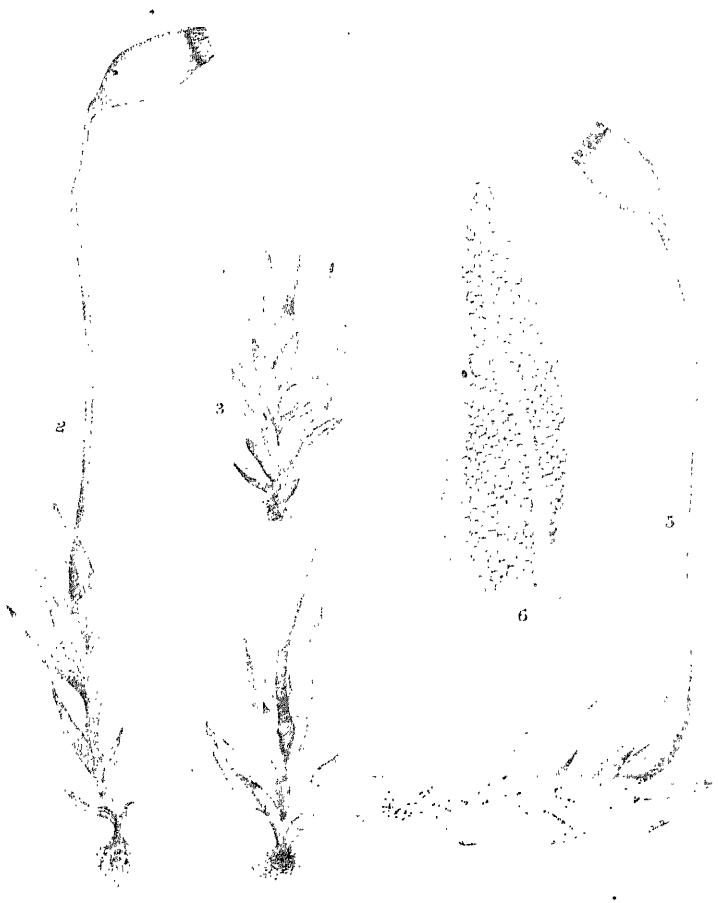
Hampe & C. Mueller in Linnæa, 1853, 501.

On the Yarra-Yarra.

Fig. 1. A plant of natural size.
Figs. 2 & 5. Fruit-bearing plants, enlarged.
Figs. 3 & 4. Lower portions of the same, enlarged.
Fig. 6. A leaf, strongly magnified.



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F. Schonfeld lith. F. Maeller direxit. [illegible]

Fissidens semilimbatus. *Nob.*

PLATE XIX.

FISSIDENS MACRODUS.

Hampe in Linnæa, 1858, 645.

On the Yarra-Yarra.

Fig. 1. Plant of natural size.

Figs. 2 & 4. Fruit-bearing plant, enlarged.

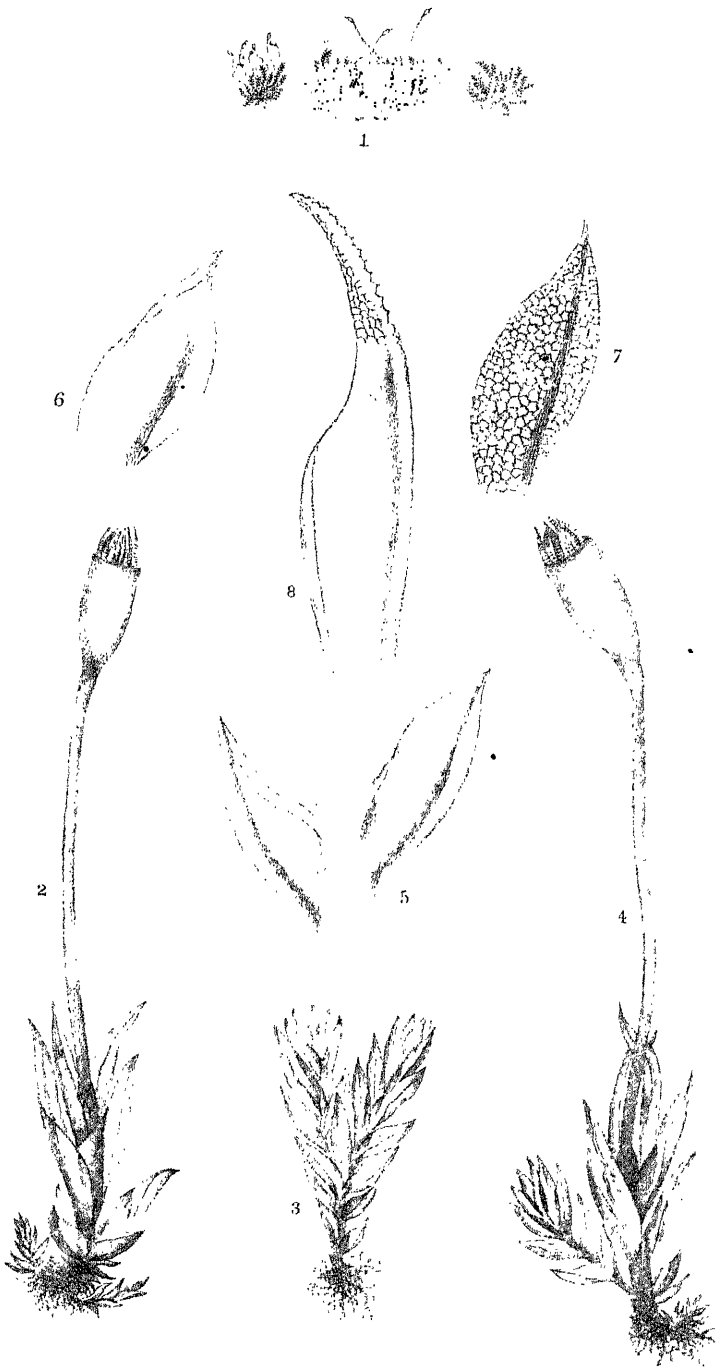
Fig. 3. Sterile plant, enlarged.

Fig. 5. Portion of a branch, enlarged.

Figs. 6–7. Stem-leaves, enlarged.

Fig. 8. A perichætial leaf, enlarged.

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F. Schonfeld lith. F. Mueller direxit Hanhart & Leigh. imp.

Fissidens Macrodus. *HAMPE*

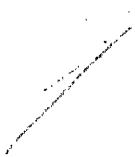


PLATE XX.

FISSIDENS ELAMELLOSUS.

Hampe & C. Mueller in Linnæa, 1856, 214.

On the Yarra-Yarra.

Fig. 1. Plant of natural size.

Fig. 2. Fruit-bearing plant, magnified, the operculum dropped.

Figs. 3–4. Fruit-bearing plants magnified, the sporangium still operculate.

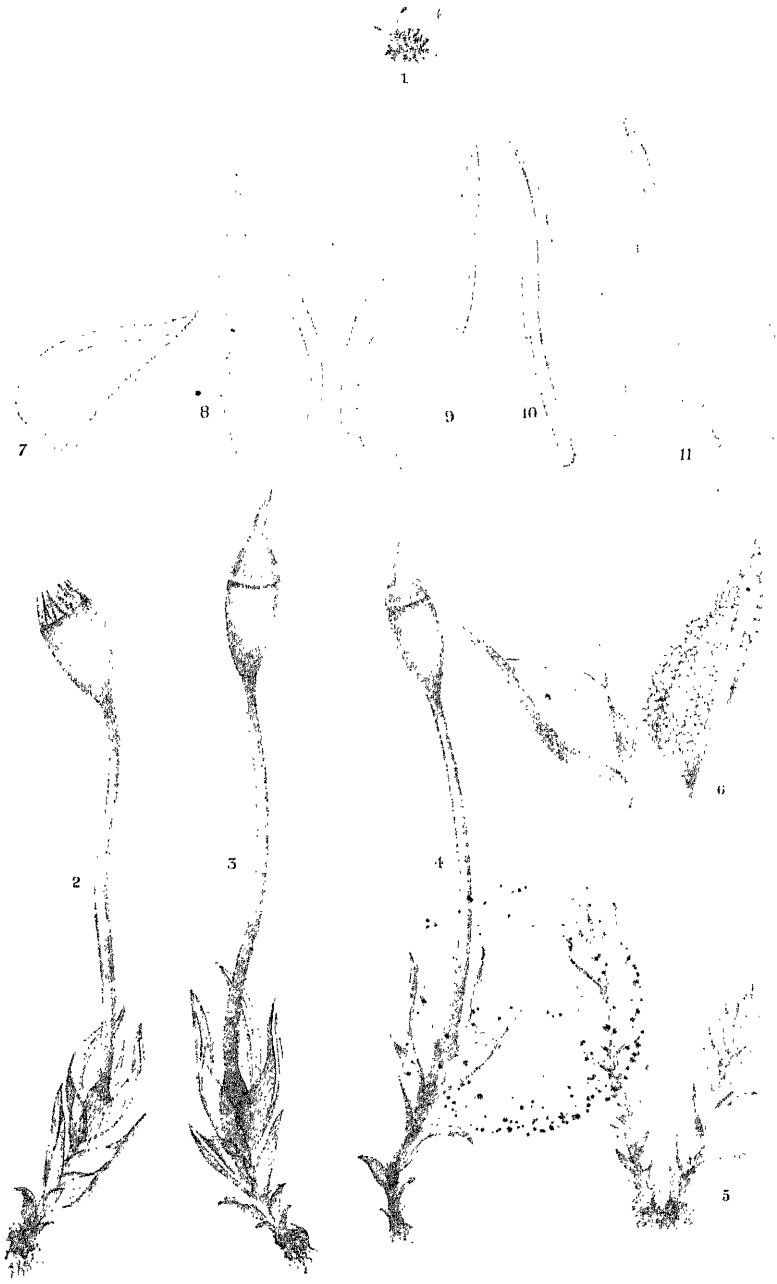
Fig. 5. Sterile plant, enlarged.

Fig. 6. Portion of a branch of the sterile plant, much enlarged.

Figs. 7–11. Perichætial leaves, much enlarged.



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F.S. Shonfield, Lith.

Fissidens elamellosus.

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